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FISHERIES AND MARINE SERVICE DATA REPORT

Salmon and tured in the intertidal Area of the Nanaimo River, 1975-1976

R. V. Schmidt, M. C. Healey, F. P. Jordan, and R. M. Hungar

Department of Fisheries and the Environment
Fisheries and Marine Service
Resource Services Branch
Pacific Biological Station
Nanaimo, British Columbia V9R 5K6

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Fisheries and Marine Service

Data Report 90

August 1978

DATA RECORD: JUVENILE SALMON AND OTHER FISH SPECIES CAPTURED IN THE INTERTIDAL AREA OF THE NANAIMO RIVER, 1975-1976

by

R. V. Schmidt, M. C. Healey, F. P. Jordan, and R. M. Hungar

Department of Fisheries and the Environment

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ABSTRACT

Schmidt, R. V., M. C. Healey, F. P. Jordan, and R. M. Hungar. 1978. Data Record: Juvenile Salmon and other fish species captured in the intertidal area of the Nanaimo River, 1975-1976. Fish. Mar. Serv. Data Rep. 90. 48 p

This abstract summarizes catches of juvenile salmon and other associated fishes in the Nanaimo estuary. Average lengths, weights, dry stomach content weights and species composition of the diet are included.

Key words: Salmon, Estuary, Intertidal, Pacific, Georgia Strait, Food.

RÉSUMÉ

Schmidt, R. V., M. C. Healey, F. P. Jordan, and R. M. Hungar. 1978. Data Record: Juvenile Salmon and other fish species captured in the intertidal area of the Nanaimo River, 1975-1976. Fish. Mar. Serv. Data Rep. 90. 48 p

Le présent article est un résumé des prises de jeunes saumons et autres poissons dans l'estuaire de la Nanaimo. Les données comprennent également les longueurs moyennes, le poids sec du contenu de l'estomac et la composition de l'alimentation.

Mots-clés: saumon, estuaire, intertidal, Pacifique, détroit de Géorgie, alimentation.

INTRODUCTION

In 1975 we began research on the population ecology of juvenile Pacific salmon (Oncorhynchus spp.) during the first few months after they enter the sea. Our research was part of a collaborative research project on the ecology of young salmon in the sea which emphasized interactions among young salmon, their food competitors and their predators (Healey et al. 1976).

In 1975 our research centered on young salmon in the Nanaimo area, particularly chum (O. keta) fry from the Nanaimo River. Our objectives were to estimate the daily emigration of chum fry from the Nanaimo River, their distribution and abundance in the local area and the contribution of Nanaimo fry to the local population, their size and rate of growth, and their feeding habits. Previous reports summarized data on the distribution, abundance and growth of young salmon in the Nanaimo area in 1975 (Healey et al. 1977a, 1977b). This data record contains the information on catch, size, and stomach contents of young salmon and other species captured by beach seine in the Nanaimo River intertidal area.

METHODS

We described capture techniques, marking techniques, sampling locations and sample treatment in detail in a previous report (Healey et al. 1977a). For sampling purposes, the estuary was divided into two main areas. Area 18 designated the upper tidal area and the upper reaches of the west channel of the river where sets were normally made at high tide. Area 19 designated the east arm of the river and the channel formed by Holden Creek. Sets in area 19 were usually made at low tide.

The beach seine used was 18 m long by 3 m deep. In the bunt, the mesh was 6 mm and the lead was 12 mm. Beach seine sets were usually made by pulling the seine along 20-40 m of beach. In setting the seine, one person pulled the net offshore until he was in 1 m of water or 10 m offshore. Then, both ends of the net were hauled parallel to the shore until the sweep was complete. In some of the stream channels at high tide the offshore end of the net was hauled by boat. At the end of the sweep the offshore end of the net was returned to shore to close the net. The cork and lead lines were then hauled in together and the catch bagged in the fine mesh bunt.

Catches were sorted by species in the field and the number of each species was counted or estimated. Estimates were made where catches were large to avoid excessive mortality. Household sieves with plastic mesh were used; and the number of sieves full of fish in the catch was counted. Several sieves full of fish were retained for a sample and the number of fish per sieve and the composition of the salmon catch were estimated from the sample. Salmon were the only species regularly counted, although estimates or counts of other species were sometimes made, especially in 1975. A sample of the salmon species was returned to the lab to be examined for tags, for length and weight measurements and for stomach content analysis.

Understanding the tables will be assisted by the following points: Each table summarizes the catch data for all samples taken in either area 18 or 19 on a single day.

1. TIME: local time except for the tide tables,

2. WEATHER: recorded when the sets were made; daily summaries are from the Nanaimo (Cassidy) airport meteorological station,

3. TIDES: times and heights of tides are those for Point Atkinson,

4. TEMPERATURE: in three (3) instances during 1976, a pair of temperatures were recorded. The first temperature given is the reading in the east channel of the river; the second, is the reading in the shallower channel of Holden Creek,

5. CATCH: the total catch of a species is recorded. The number of marked fish in the total catch is recorded by color of mark. Fry were marked by spraying them with fluorescent grit during their downstream migration (Healey et al. 1977a),

6. MARKED FISH: samples of unmarked and marked fish were analyzed separately. The summary of length, weight and stomach information for unmarked fish is followed by the summary for each color of marked fish recaptured,

7. LENGTHS: average fork length and standard error,

8. WEIGHTS: fish weights recorded were wet weights of preserved fish blotted to remove excess moisture. In 1975, individual fish were weighed; in 1976, the total weight of a sample of fish was recorded and divided by the sample size to get average weight. Where two or more samples were weighed, a standard error was calculated for the average weights.

9. STOMACH CONTENTS: wet weights of individual stomach contents were recorded for all marked fish in 1975 and for unmarked fish captured in March, April, and part of May 1975. After this the procedure was changed to recording the dry weight of a group of 10 or more stomach contents and dividing by sample size to get average weight. Wet weights of stomach contents were converted to estimates of dry weight by assuming 20% dry matter. Percent is percent of dry body weight (again estimated as 20% of wet preserved weight).

10. DIET BY SIZE: the size ranges of diet items are indicated by the upper limit of the size range, i.e. <1mm, -1.5 mm (=1-1.5 mm), - 2.5, (=1.5-2.5 mm), etc. Under each size interval is the average number of organisms of that size found in the stomachs examined. N is the number of stomachs analyzed. SUM is the average total number of organisms per stomach. The sum, however, may not always equal the averages for the individual size classes due to rounding errors,

11. DIET ITEMS: the number of stomachs analyzed is shown as N = followed by the column headings:

a) CODE: our internal taxonomic code,
b) STOM: the number of stomachs out of the total examined that contained

the particular diet item,

c) N: the actual number of specimens of the particular species found in all the stomachs examined

d) %: the previous number (N) as a percent of the total number of organisms in the stomachs,

e) NAME: the common taxonomic name for the diet item,

f) : no entry under the title line indicates the stomachs were empty,

g) : no entry under a column heading indicates no data.

Ocasionally, the number of chum stomachs analyzed is higher than the number of chum caught. This happened when a chinook was present in the sample and its stomach contents were accidentally lumped with the chum stomachs during analysis. In a few instances, a marked chum was included with the stomach analysis of unmarked chum.

12. MISCELLANEOUS: species of fish, other than salmon, were not always counted. No catch record for a species indicates the species was present in the catch but its abundance was not recorded.

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6MAR75 1400HR AREA 19 5 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS AT SET TIME		SUMMARY FOR DAY		TIDES PST	FEET	METERS
WIND DIRECTION	CLM	MAX TEMP (C)	9.4	150	13.7	4.18
SPEED (KM/H)	0	MIN TEMP (C)	-4.4	725	11.1	3.38
CLOUD (/10)	2	PRECIP. (MM)	0.0	1120	12.2	3.72
SEA	CALM	SUN (HR)	8.3	1905	4.9	1.49

CHUM SALMON-ONCORHYNCHUS KETA	CATCH	3.
CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA		
STARRY FLOUNDER-PLATICHTHYS STELLATUS	CATCH	14.
BUFFALO SCULPIN-ENOPHRYS BISON	CATCH	4.
PRICKLY SCULPIN-COTTUS ASPER	CATCH	20.
PADDED SCULPIN-ARTEDIUS FENESTRALIS	CATCH	2.
CRESCENT GUNNEL-PHOLIS LAETA	CATCH	3.
SURF SMELT-HYPOMESUS PRETIOSUS PRETIOSUS	CATCH	6.
HIGH COCKSCOMB-ANOPLARCHUS PURPURESCENS	CATCH	1.
THREESPINE STICKLEBACK-GASTEROSTEUS ACULEATUS	CATCH	45.
CALICO SCULPIN-CLINOCOTTUS EMBRYUM	CATCH	9.
TIDEPOOL SCULPIN-OLIGOCOTTUS MACULOSUS	CATCH	1.
SHINER PERCH-CYMATOGASTER AGGREGATA		

12MAR75 1600HR AREA 18 6 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT SW

WEATHER CONDITIONS

AT SET TIME		SUMMARY FOR DAY		TIDES PST	FEET	METERS
WIND DIRECTION	SE	MAX TEMP (C)	8.9	520	14.1	4.30
SPEED (KM/H)		MIN TEMP (C)	1.7	1130	7.5	2.29
CLOUD (/10)	10	PRECIP. (MM)	6.1	1715	12.8	3.90
SEA	CALM	SUN (HR)	0.2	2325	6.3	1.92

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK BLUE
89.	1	1

UNMARKED FISH

N= 30 AVERAGE LENGTH (MM) 37. S.E. 0.42
N= 30 AVERAGE WEIGHT (G) 0.46 S.E. 0.02
N= 30 AVERAGE WEIGHT (MG) 1.9 % 2.06

STOMACH CONTENT

DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
30	24	7	7	4	0	3	0	41

DIET ITEMS N=30	CODE	# STOM	N	%	NAME
	UYU		258	53.9	HARPACTICOID GENERAL
	UK0		17	3.5	CYCLOPOID GENERAL
	Y63		93	19.4	CHIRONOMIDAE LARVA
	X64		35	7.3	INSECTA ADULT
	KU0		27	5.6	GAMMERIDEAE
	RE3		6	1.3	EVADNE SP.
	Y55		2	0.4	DIPTERA
	XH0		1	0.2	DECAPODA GENERAL
	MM5		4	0.8	COROPHIIDAE
	MX5		8	1.7	EUSIRIDAE
	MI0		13	2.7	TANAIDACEAE
	YH1		13	2.7	SHRIMP LARVA
	MM0		1	0.2	GAMMARIDAE
	ML5		1	0.2	LEPTOCUMA SP.

THREESPINE STICKLEBACK-GASTEROSTEUS ACULEATUS CATCH 3.

SURF SMELT-HYPOMESUS PRETIOSUS PRETIOSUS CATCH 20.

PACIFIC STAGHORN SCULPIN-LEPTOCOTTUS ARMATUS CATCH 10.

17MAR75 1500HR AREA 19 5 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME	SUMMARY FOR DAY	
WIND DIRECTION	MAX TEMP (C)	11.7
SPEED (KM/H)	MIN TEMP (C)	0.0
CLOUD (/10)	PRECIP. (MM)	23.4
SEA	SUN (HR)	4.3

TIDES

PST	FEET	METERS
135	9.3	2.83
705	13.9	4.24
1410	4.4	1.34
2100	13.2	4.02

CHUM SALMON-ONCORHYNCHUS KETA CATCH 9.

N= 9	AVERAGE LENGTH (MM)	39.	S.E.	0.65
N= 9	AVERAGE WEIGHT (G)	0.49	S.E.	0.03
N= 9	AVERAGE WEIGHT (MG)	3.7	%	3.73

STOMACH CONTENT

DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
9	1	12	18	5	0	0	0	36

DIET ITEMS N= 9

CODE	# STOM	N	%	NAME
UY0		103	33.2	HARPACTICOID GENERAL
YH1		94	30.3	SHRIMP LARVA
WU0		11	3.5	GAMMERIDEAE
Y55		62	20.0	DIPTERA
X64		5	1.6	INSECTA ADULT
Y63		22	7.1	CHIRONOMIDAE LARVA
WW5		7	2.3	COROPHIIDAE
WI0		1	0.3	TANAIDACEAE
ZK0		1	0.3	GASTROPODA GENERAL
ZA1		1	0.3	CALLIANASSA SP.
YG7		1	0.3	CRANGON FRANCISCANUS
WW9		1	0.3	CALLIOPIIDAE
UK0		1	0.3	CYCLOPOID GENERAL

PACIFIC STAGHORN SCULPIN-LEPTOCOTTUS ARMATUS CATCH 2.

N= 1	AVERAGE LENGTH (MM)	180.	S.E.	0.00
N= 1	AVERAGE WEIGHT (G)	79.23	S.E.	0.00

BUFFALO SCULPIN-ENOPHRYS BISON CATCH 1.

N= 1	AVERAGE LENGTH (MM)	100.	S.E.	0.00
N= 1	AVERAGE WEIGHT (G)	25.85	S.E.	0.00

PADDED SCULPIN-ARTEDIUS FENESTRALIS CATCH 4.

PRICKLY SCULPIN-COTTUS ASPER CATCH 1.

HIGH COCKSCOMB-ANOPLARCHUS PURPURESCENS CATCH 1.

STICKLEBACKS-FAMILY GASTEROSTEIDAE CATCH 34.

STARRY FLOUNDER-PLATICHTHYS STELLATUS CATCH 10.

20MAR75 900HR AREA 18 5 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT SW

WEATHER CONDITIONS AT SET TIME	SUMMARY FOR DAY		TIDES PST	FEET	METERS
WIND DIRECTION	MAX TEMP (C)	9.4	415	11.3	3.44
SPEED (KM/H)	MIN TEMP (C)	-1.7	855	13.1	3.99
CLOUD (/10)	PRECIP. (MM)	1.0	1655	4.3	1.31
SEA	SUN (HR)	6.4			

CHUM SALMON-ONCORHYNCHUS KETA	CATCH	26.
CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA	CATCH	1.
STICKLEBACKS-FAMILY GASTEROSTEIDAE	CATCH	1.
SCULPINS-FAMILY COTTIDAE	CATCH	9.

20MAR75 1000HR AREA 18 2 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT SW

WEATHER CONDITIONS AT SET TIME	SUMMARY FOR DAY		TIDES PST	FEET	METERS
WIND DIRECTION	MAX TEMP (C)	9.4	415	11.3	3.44
SPEED (KM/H)	MIN TEMP (C)	-1.7	855	13.1	3.99
CLOUD (/10)	PRECIP. (MM)	1.0	1655	4.3	1.31
SEA	SUN (HR)	6.4			

CHUM SALMON-ONCORHYNCHUS KETA	CATCH	3.
STARRY FLOUNDER-PLATICHTHYS STELLATUS	CATCH	1.

20MAR75 1100HR AREA 19 4 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME	
WIND DIRECTION	SE
SPEED (KM/H)	13-16
CLOUD (/10)	6
SEA	

SUMMARY FOR DAY

MAX TEMP (C)	9.4
MIN TEMP (C)	-1.7
PRECIP. (MM)	1.0
SUN (HR)	6.4

TIDES

PST	FEET	METERS
415	11.3	3.44
855	13.1	3.99
1655	4.3	1.31

CHUM SALMON-ONCORHYNCHUS KETA CATCH 69.

N= 30 AVERAGE LENGTH (MM) 40. S.E. 0.68
N= 30 AVERAGE WEIGHT (G) 0.61 S.E. 0.03
N= 30 AVERAGE WEIGHT (MG) 5.9 % 4.88

STOMACH CONTENT DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
30	12	9	24	19	2	0	0	65

DIET ITEMS N=30 CODE	# STOM	N	%	NAME
TL0		339	17.5	MICROCALANUS PUSILLUS
UY6		130	6.7	HARPACTICOID ADULT
YH1		1196	61.6	SHRIMP LARVA
Y66		49	2.5	CHAOBORUS LARVA
WU0		38	2.0	GAMMERIDEAE
RR0		160	8.2	PSEUDOCALANUS MINUTUS
RF2		2	0.1	PODON SP.
WX2		2	0.1	AMPHITHOIDAE
X64		1	0.1	INSECTA ADULT
WW0		10	0.5	GAMMARIDAE
RE3		4	0.2	EVADNE SP.
GX0		4	0.2	ERRANTIA
Y55		1	0.1	DIPTERA
WX5		3	0.2	EUSIRIDAE
001		1	0.1	LARVAL FISHES
XG9		1	0.1	PARATHEMISTO PACIFICA
WW5		1	0.1	CORUPHIIDAE

THREESPINE STICKLEBACK-GASTEROSTEUS ACULEATUS CATCH 12.

PACIFIC STAGHORN SCULPIN-LEPTOCOTTUS ARMATUS CATCH 72.

STARRY FLOUNDER-PLATICHTHYS STELLATUS CATCH 1.

28MAR75 1030HR AREA 18 9 SETS

MUDFLAT BEACH SEINES NANAINO RIVER MUDFLAT SM

WEATHER CONDITIONS

AT SET TIME		SUMMARY FOR DAY		TIDES PST	FEET	METERS
WIND DIRECTION	NW	MAX TEMP (C)	8.3	425	15.3	4.66
SPEED (KM/H)	8-16	MIN TEMP (C)	-0.6	1040	6.3	1.92
CLOUD (/10)	2	PRECIP. (MM)	0.0	1635	14.1	4.30
SEA		SUN (HR)	9.4	2240	5.6	1.71

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK ORANGE
286.	2	2

UNMARKED FISH

N= 31 AVERAGE LENGTH (MM) 39. S.E. 0.64
N= 31 AVERAGE WEIGHT (G) 0.53 S.E. 0.04
N= 30 AVERAGE WEIGHT (MG) 1.7 % 1.57

STOMACH CONTENT DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
30	1	4	2	0	1	0	0	9

DIET ITEMS N=30

CODE	# STOM	N	%	NAME
Y63		8	2.7	CHIRONOMIDAE LARVA
UK0		17	5.8	CYCLOPOID GENERAL
UY0		153	52.2	HARPACTICOID GENERAL
Y66		39	13.3	CHAOBORUS LARVA
X64		42	14.3	INSECTA ADULT
AU0		3	1.0	GAMMERIDEAE
X62		1	0.3	INSECTA LARVA
001		11	3.8	LARVAL FISHES
AL5		1	0.3	LEPTOCUMA SP.
AA6		4	1.4	CORDPHIUM SP.
AA5		8	2.7	EUSIRIDAE
Y55		5	1.7	DIPTERA
YH3		1	0.3	SHRIMP ADULT

ORANGE

N= 2 AVERAGE LENGTH (MM) 37. S.E. 1.50
N= 2 AVERAGE WEIGHT (G) 0.40 S.E. 0.07
N= 2 AVERAGE WEIGHT (MG) 0.6 % 0.76

STOMACH CONTENT DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
2	2	9	2	1	1	0	0	14

THREESPINE STICKLEBACK-GASTEROSTEUS ACULEATUS CATCH 12.

PADDED SCULPIN-ARTEDIUS FENESTRALIS CATCH 20.

SURF SMELT-HYPOMESUS PRETIOSUS PRETIOSUS CATCH 3.

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA CATCH 1.

N= 1 AVERAGE LENGTH (MM) 38. S.E. 0.00
N= 1 AVERAGE WEIGHT (G) 0.51 S.E. 0.00
N= 1 AVERAGE WEIGHT (MG) 0.0 % 0.00

STOMACH CONTENT DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
1	0	0	0	0	0	0	0	0

26MAR75 1100HR AREA 19 6 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS AT SET TIME

WIND DIRECTION NW
SPEED (KM/H) 40
CLOUD (/10) 2
SEA

SUMMARY FOR DAY

MAX TEMP (C) 8.3
MIN TEMP (C) -0.6
PRECIP. (MM) 0.0
SUN (HR) 9.4

TIDES

PST	FEET	METERS
425	15.3	4.66
1040	0.3	1.92
1635	14.1	4.30
2240	5.6	1.71

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH 271. TOTAL MARKS 1 CATCH BY TYPE OF MARK BLUE 1

BLUE

N= 1 AVERAGE LENGTH (MM) 39. S.E. 0.00
N= 1 AVERAGE WEIGHT (G) 0.51 S.E. 0.00
N= 1 AVERAGE WEIGHT (MG) 4.2 % 4.12

STOMACH CONTENT

DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
	1	0	0	1	4	3	0	0	8

DIET ITEMS N= 1

CODE	# STOM	N	%	NAME
WX5		1	12.5	EUSIRIDAE
A90		5	62.5	CHAETOGNATHA GENERAL
Y55		1	12.5	DIPTERA
WL5		1	12.5	LEPTOCUMA SP.

PADDED SCULPIN-ARTEDIUS FENESTRALIS CATCH 45.

THREESPINE STICKLEBACK-GASTEROSTEUS ACULEATUS CATCH 93.

STARRY FLOUNDER-PLATICHTHYS STELLATUS CATCH 29.

CRESCENT GUNNEL-PHOLIS LAETA CATCH 5.

SURF SMELT-HYPOMESUS PRETIOSUS PRETIOSUS CATCH 8.

15 SETS

APR75 900HR AREA 19

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME
WIND DIRECTION
SPEED (KM/HR)
CLOUD (/10)
SEA

SUMMARY FOR DAY

MAX TEMP (C)	9.4
MIN TEMP (C)	1.7
PRECIP. (MM)	2.3
SUN (HR)	7.9

TIDES

PST	FEET	METERS
410	10.6	3.23
835	12.4	3.78
1600	4.3	1.31
2350	14.0	4.27

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK ORANGE
430.	1	1

UNMARKED FISH

N= 36 AVERAGE LENGTH (MM) 40. S.E. 0.41
N= 36 AVERAGE WEIGHT (G) 0.51 S.E. 0.02
N= 30 AVERAGE WEIGHT (MG) 4.7 % 4.66

STOMACH CONTENT
DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
30	1	11	22	14	1	0	0	48

DIET ITEMS N=30

CODE	# STOM	N	%	NAME
YH1		442	30.7	SHRIMP LARVA
Y63		17	1.2	CHIRONOMIDAE LARVA
Y55		236	16.4	DIPTERA
Y64		8	0.6	CHIRONOMIDAE PUPA
UY0		637	44.2	HARPACTICOID GENERAL
W10	5.	3	0.2	TANAIDACEAE
001	3.	22	1.5	LARVAL FISHES
WX5		25	1.7	EUSIRIDAE
RR0	4.	4	0.3	COPEPODA GENERAL
X70		5	0.3	COLLEMBOLA
WA0	5.	10	0.7	MYSIDACEA GENERAL
WU0		15	1.0	GAMMERIDEAE
VY2	6.	1	0.1	CIRRIPEDIA CYPRID
Y66		7	0.5	CHAOBORUS LARVA
AL5		1	0.1	LEPTOCUMA SP.
WW5		4	0.3	COROPHIIDAE
PR0		2	0.1	POLYCHAETA GENERAL
TL0		2	0.1	MICROCALANUS PUSILLUS
SA0		1	0.1	METRIDIA PACIFICA

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA	CATCH	3.
STARRY FLOUNDER-PLATICHTHYS STELLATUS	CATCH	3.
THREESPINE STICKLEBACK-GASTEROSTEUS ACULEATUS	CATCH	32.
PACIFIC STAGHORN SCULPIN-LEPTOCOTTUS ARMATUS	CATCH	70.
SURF SMELT-HYPOMESUS PRETIOSUS PRETIOSUS	CATCH	43.
PRICKLY SCULPIN-COTTUS ASPER	CATCH	11.

2APR75 1400HR AREA 19 7 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME	
WIND DIRECTION	SE
SPEED (KM/H)	8-16
CLOUD (/10)	8
SEA	

SUMMARY FOR DAY

MAX TEMP (C)	9.4
MIN TEMP (C)	1.7
PRECIP. (MM)	2.3
SUN (HR)	7.9

TIDES

PST	FEET	METERS
410	10.6	3.23
835	12.4	3.78
1600	4.3	1.31
2350	14.0	4.27

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK BLUE	ORANGE
352.	3	2	1

UNMARKED FISH

N=343 AVERAGE LENGTH (MM) 40. S.E. 0.19
N=343 AVERAGE WEIGHT (G) 0.51 S.E. 0.01
N= 30 AVERAGE WEIGHT (MG) 6.0 % 5.87

STOMACH CONTENT DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
30	1	7	26	22	4	0	0	60

DIET ITEMS N=30

CODE	# STOM	N	%	NAME
YH1		695	39.5	SHRIMP LARVA
UY0		824	46.8	HARPACTICOID GENERAL
Y63		3	0.2	CHIRONOMIDAE LARVA
Y55		1	0.1	DIPTERA
001		36	2.0	LARVAL FISHES
WX5		54	3.1	EUSIRIDAE
WU0		49	2.8	GAMMERIDEAE
VY2		3	0.2	CIRRIPEDIA CYPRID
Y66		74	4.2	CHAOBORUS LARVA
WW5		4	0.2	COROPHIIDAE
SA0		1	0.1	METRIDIA PACIFICA
WW0		15	0.9	GAMMARIDAE
X63		1	0.1	INSECTA PUPA
RK0		1	0.1	COPEPODA GENERAL

BLUE

N= 2 AVERAGE LENGTH (MM) 43. S.E. 2.00
N= 2 AVERAGE WEIGHT (G) 0.73 S.E. 0.10
N= 2 AVERAGE WEIGHT (MG) 9.0 % 0.21

STOMACH CONTENT DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
2	2	13	53	33	2	2	0	104

DIET ITEMS N= 2

CODE	# STOM	N	%	NAME
UY0		89	41.6	HARPACTICOID GENERAL
Y55		44	20.6	DIPTERA
Y64		3	1.4	CHIRONOMIDAE PUPA
Y63		1	0.5	CHIRONOMIDAE LARVA
Y66		4	1.9	CHAOBORUS LARVA
WI0		2	0.9	TANAIDACEAE
WX5		4	1.9	EUSIRIDAE
YH1		63	29.4	SHRIMP LARVA
001		4	1.9	LARVAL FISHES

ORANGE

N= 1 AVERAGE LENGTH (MM) 38. S.E. 0.00
N= 1 AVERAGE WEIGHT (G) 0.41 S.E. 0.00
N= 1 AVERAGE WEIGHT (MG) 4.4 % 5.37

STOMACH CONTENT DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
1	0	6	42	5	0	0	0	53

DIET ITEMS N= 1

CODE	# STOM	N	%	NAME
Y55		20	37.7	DIPTERA
Y63		1	1.9	CHIRONOMIDAE LARVA
UY6		21	39.6	HARPACTICOID ADULT
WU0		8	15.1	GAMMERIDEAE
YH1		3	5.7	SHRIMP LARVA

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA CATCH 9.

N= 9 AVERAGE LENGTH (MM) 42. S.E. 1.40
N= 9 AVERAGE WEIGHT (G) 0.75 S.E. 0.10
STOMACH CONTENT N= 9 AVERAGE WEIGHT (MG) 5.0 % 3.30

DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-9.0	-15.	>15	SUM
	9	1	8	20	11	2	0	0	42

DIET ITEMS N= 9 CODE	# STOM	N	%	NAME
Y03		5	1.5	CHIRONOMIDAE LARVA
W00		9	2.6	GAMMERIDEAE
Y55		107	31.4	DIPTERA
UY6		181	53.1	HARPACTICOID ADULT
WW5		7	2.1	COROPHIIDAE
YH1		16	4.7	SHRIMP LARVA
WX5		9	2.6	EUSIRIDAE
Y66		3	0.9	CHAOBORUS LARVA
WW0		4	1.2	GAMMARIDAE

THREESPINE STICKLEBACK-GASTEROSTEUS ACULEATUS CATCH 45.

PACIFIC STAGHORN SCULPIN-LEPTOCOTTUS ARMATUS CATCH 15.

CALICO SCULPIN-CLINOCOTTUS EMBRYUM CATCH 30.

STARRY FLOUNDER-PLATICHTHYS STELLATUS CATCH 58.

CRESCENT GUNNEL-PHOLIS LAETA CATCH 18.

SADDLEBACK GUNNEL-PHOLIS ORNATA CATCH 4.

SURF SMELT-HYPOMESUS PRETIOSUS PRETIOSUS CATCH 5.

BAY PIPEFISH-SYNGNATHUS GRISEOLINEATUS CATCH 1.

HIGH COCKSCOMB-ANOPLARCHUS PURPURESCENS CATCH 3.

9APR75 1530HR AREA 18 7 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT Sw

WEATHER CONDITIONS AT SET TIME
WIND DIRECTION Sw
SPEED (KM/H) 8-16
CLOUD (/10) 1
SEA

SUMMARY FOR DAY
MAX TEMP (C) 14.4
MIN TEMP (C) -1.7
PRECIP. (MM) 0.0
SUN (HR) 10.5

TIDES
PST FEET METERS
400 13.6 4.15
1020 6.4 1.95
1630 12.6 3.84
2225 7.7 2.35

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK ORANGE
76.	1	1

UNMARKED FISH

N= 75 AVERAGE LENGTH (MM) 44. S.E. 0.94
N= 75 AVERAGE WEIGHT (G) 0.89 S.E. 0.06
N= 60 AVERAGE WEIGHT (MG) 6.7 % 3.79

STOMACH CONTENT DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
	60	2	5	10	45	0	0	0	62

DIET ITEMS N=60 CODE	# STOM	N	%	NAME
UY6	23	542	14.5	HARPACTICOID ADULT
Y55	15	134	3.6	DIPTERA
WW5	8	46	1.2	CUROPHIIDAE
001	5	12	0.3	LARVAL FISHES
X62	3	4	0.1	INSECTA LARVA
WU0	1	21	0.6	GAMMERIDEAE
WI0	3	4	0.1	TANAIDACEAE
YH1	27	2665	71.1	SHRIMP LARVA
X63	23	304	8.1	INSECTA PUPA
WX5	6	13	0.3	EUSIRIDAE
WW0		1	0.0	GAMMARIDAE
UK0		1	0.0	CYCLOPOID GENERAL

ORANGE

N= 1 AVERAGE LENGTH (MM) 38. S.E. 0.00
N= 1 AVERAGE WEIGHT (G) 0.49 S.E. 0.00
N= 1 AVERAGE WEIGHT (MG) 3.8 % 3.68

STOMACH CONTENT DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
	1	0	3	39	17	0	0	0	59

DIET ITEMS N= 1 CODE	# STOM	N	%	NAME
YH1	1	16	26.2	SHRIMP LARVA
Y63	1	41	67.2	CHIRONOMIDAE LARVA
Y55	1	2	3.3	DIPTERA
WU0	1	1	1.6	GAMMERIDEAE
X62	1	1	1.6	INSECTA LARVA

PACIFIC STAGHORN SCULPIN-LEPTOCOTTUS ARMATUS CATCH 54.

THREESPINE STICKLEBACK-GASTEROSTEUS ACULEATUS CATCH 12.

STARRY FLOUNDER-PLATICHTHYS STELLATUS CATCH 1.

ARROW GOBY-CLEVELANDIA IOS CATCH 2.

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA CATCH 1.

N= 1 AVERAGE LENGTH (MM) 38. S.E. 0.00
N= 1 AVERAGE WEIGHT (G) 0.58 S.E. 0.00

10APR75 1730HR AREA 18 DEPTH 2 6 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT SW

WEATHER CONDITIONS AT SET TIME
WIND DIRECTION CLM
SPEED (KM/H)
CLOUD (/10) 0
SEA CALM

SUMMARY FOR DAY
MAX TEMP (C) 17.2
MIN TEMP (C) -1.1
PRECIP. (MM) 0.0
SUN (HR) 10.3

TIDES

PST	FEET	METERS
425	13.7	4.18
1050	5.6	1.71
1720	13.1	3.99
2255	8.2	2.50

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK ORANGE	GREEN
1437.	14	6	8

UNMARKED FISH

N= 50 AVERAGE LENGTH (MM) 43. S.E. 0.59
N= 50 AVERAGE WEIGHT (G) 0.79 S.E. 0.05

ORANGE

N= 6 AVERAGE LENGTH (MM) 42. S.E. 0.79
N= 6 AVERAGE WEIGHT (G) 0.64 S.E. 0.05
STOMACH CONTENT N= 6 AVERAGE WEIGHT (MG) 4.6 % 3.54

DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
	6	1	17	65	6	0	0	0	89

DIET ITEMS N= 6

CODE	# STOM	N	%	NAME
UY0		470	88.0	HARPACTICOID GENERAL
Y60		4	0.7	CHIRONOMIDAE
YH1		31	5.8	SHRIMP LARVA
Y64		1	0.2	CHIRONOMIDAE PUPA
Y63		2	0.4	CHIRONOMIDAE LARVA
WX5		17	3.2	EUSIRIDAE
Y95		2	0.4	THYSANOPTERA
WW5		5	0.9	COROPHIIDAE
ZK3		1	0.2	GASTROPODA EGG CASE
WL5		1	0.2	LEPTOCUMA SP.

GREEN

N= 8 AVERAGE LENGTH (MM) 38. S.E. 0.73
N= 8 AVERAGE WEIGHT (G) 0.47 S.E. 0.03
STOMACH CONTENT N= 8 AVERAGE WEIGHT (MG) 0.9 % 0.98

DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
	8	1	7	2	0	0	0	0	10

DIET ITEMS N= 9

CODE	# STOM	N	%	NAME
UY6		68	65.4	HARPACTICOID ADULT
Y63		15	14.4	CHIRONOMIDAE LARVA
Y55		11	10.6	DIPTERA
WU0		10	9.6	GAMMERIDEAE

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK GREEN
12.	1	1

GREEN

N= 1 AVERAGE LENGTH (MM) 40. S.E. 0.00
N= 1 AVERAGE WEIGHT (G) 0.68 S.E. 0.00
STOMACH CONTENT N= 1 AVERAGE WEIGHT (MG) 1.8 % 1.32

DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
	1	0	0	3	7	0	0	0	10

NOTE: THE DIET ITEMS OF ONE GREEN-MARKED CHINOOK ANALYZED WITH GREEN-MARKED CHUM.

11APR75 1000HR AREA 19 8 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS AT SET TIME	SUMMARY FOR DAY		TIDES PST	FEET	METERS
WIND DIRECTION	MAX TEMP (C)	18.3	445	13.7	4.18
SPEED (KM/H)	MIN TEMP (C)	-0.6	1115	4.8	1.46
CLOUD (/10)	PRECIP. (MM)	0.0	1800	13.5	4.11
SEA	SUN (HR)	10.3	2335	8.7	2.65

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK BLUE	ORANGE	GREEN
2214.	26	1	12	13

BLUE

N= 1 AVERAGE LENGTH (MM) 50. S.E. 0.00
N= 1 AVERAGE WEIGHT (G) 0.68 S.E. 0.00
N= 1 AVERAGE WEIGHT (MG) 6.0 % 4.41

STOMACH CONTENT DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
1	0	27	43	44	0	0	0	114

DIET ITEMS N= 1

CODE	# STOM	N	%	NAME
UY0		68	59.6	HARPACTICOID GENERAL
YH1		44	38.6	SHRIMP LARVA
Y60		1	0.9	CHIRONOMIDAE
WX5		1	0.9	EUSIRIDAE

ORANGE

N= 12 AVERAGE LENGTH (MM) 42. S.E. 0.76
N= 12 AVERAGE WEIGHT (G) 0.64 S.E. 0.04
N= 12 AVERAGE WEIGHT (MG) 2.8 % 2.13

STOMACH CONTENT DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
12	1	17	13	6	0	0	0	37

DIET ITEMS N=12

CODE	# STOM	N	%	NAME
UY0	12	346	79.7	HARPACTICOID GENERAL
Y60	2	4	0.9	CHIRONOMIDAE
YH1	9	84	19.4	SHRIMP LARVA

GREEN

N= 13 AVERAGE LENGTH (MM) 39. S.E. 0.27
N= 13 AVERAGE WEIGHT (G) 0.48 S.E. 0.01
N= 13 AVERAGE WEIGHT (MG) 2.2 % 2.29

STOMACH CONTENT DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
13	0	4	8	5	0	0	0	17

DIET ITEMS N=13

CODE	# STOM	N	%	NAME
YH1		159	52.1	SHRIMP LARVA
UY0		122	40.0	HARPACTICOID GENERAL
Y63		5	1.6	CHIRONOMIDAE LARVA
WU0		5	1.6	GAMMARIDEAE
WA5		4	1.3	COROPHIIDAE
Y55		9	3.0	DIPTERA
WA0		1	0.3	MYSIDACEA GENERAL

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA	CATCH	16.
PADDED SCULPIN-ARTEDIUS FENESTRALIS	CATCH	19.
COHO SALMON-ONCORHYNCHUS KISUTCH	CATCH	5.
STICKLEBACKS-FAMILY GASTEROSTEIDAE	CATCH	9.
SURF SMELT-HYPOMESUS PRETIOSUS PRETIOSUS	CATCH	10.
STARRY FLOUNDER-PLATICHTHYS STELLATUS	CATCH	11.
CRESCENT GUNNEL-PHOLIS LAETA	CATCH	4.

17APR75 1300HR AREA 19 5 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME	SUMMARY FOR DAY		TIDES PST	FEET	METERS
WIND DIRECTION	MAX TEMP (C)	11.7	320	11.0	3.35
SPEED (KM/H)	MIN TEMP (C)	2.8	750	12.8	3.90
CLOUD (/10)	PRECIP. (MM)	0.0	1520	3.5	1.07
SEA	SUN (HR)	0.0	2310	14.2	4.33

CHUM SALMON=ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK BLUE	ORANGE	GREEN	RED
3594.	82	1	33	41	7

UNMARKED FISH

N=185 AVERAGE LENGTH (MM) 48. S.E. 0.38
N=185 AVERAGE WEIGHT (G) 1.06 S.E. 0.03
N= 30 AVERAGE WEIGHT (MG) 6.2 % 2.92

STOMACH CONTENT DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
30	1	4	6	7	1	0	0	19

DIET ITEMS N=30

CODE	# STOM	N	%	NAME
UY6	26	224	31.2	HARPACTICOID ADULT
AU0	12	27	3.8	GAMMERIDEAE
001	10	46	6.4	LARVAL FISHES
Y55	10	27	3.8	DIPTERA
VY2	2	2	0.3	CIRRIPEDIA CYPRID
YH1	22	255	35.5	SHRIMP LARVA
Y63	3	5	0.7	CHIRONUMIDAE LARVA
AA0	3	36	5.0	MYSIDACEA GENERAL
AA0	10	73	10.2	GAMMARIDAE
A10	1	1	0.1	TANAIDACEAE
AA5	3	4	0.6	CORophIIDAE
RK0	3	10	1.4	COPEPODA GENERAL
UK0	3	3	0.4	CYCLOPOID GENERAL
RR0	1	4	0.6	PSEUDOCALANUS MINUTUS
AX5	1	1	0.1	EUSIRIDAE
Y66	1	1	0.1	CHAOBORUS LARVA

BLUE

N= 1 AVERAGE LENGTH (MM) 47. S.E. 0.00
N= 1 AVERAGE WEIGHT (G) 1.01 S.E. 0.00
N= 1 AVERAGE WEIGHT (MG) 5.0 % 2.48

STOMACH CONTENT DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
1	6	12	10	2	0	0	0	30

DIET ITEMS N= 1

CODE	# STOM	N	%	NAME
UY0	1	6	25.0	HARPACTICOID GENERAL
AX5	1	10	41.7	EUSIRIDAE
Y55	1	8	33.3	DIPTERA

ORANGE

N= 19 AVERAGE LENGTH (MM) 48. S.E. 0.57
N= 19 AVERAGE WEIGHT (G) 1.09 S.E. 0.04
N= 19 AVERAGE WEIGHT (MG) 3.5 % 1.62

STOMACH CONTENT DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
19	0	2	3	6	1	0	0	12

DIET ITEMS N=19

CODE	# STOM	N	%	NAME
001	3	25	9.4	LARVAL FISHES
YH1	8	126	47.2	SHRIMP LARVA
UY0	3	78	29.2	HARPACTICOID GENERAL
RK0	3	6	2.2	COPEPODA GENERAL
AX5	4	9	3.4	EUSIRIDAE
Y55	5	6	2.2	DIPTERA
Y66	1	1	0.4	CHAOBORUS LARVA
AA0	1	1	0.4	GAMMARIDAE
AU0	5	11	4.1	GAMMERIDEAE

ΩI0	1	2	0.7	TANAIDACEAE
YM3	2	2	0.7	SHRIMP ADULT

GREEN

	N= 18	AVERAGE LENGTH (MM)		43.	S.E.		0.58			
	N= 18	AVERAGE WEIGHT (G)		0.76	S.E.		0.04			
	N= 18	AVERAGE WEIGHT (MG)		2.3	%		1.55			
STOMACH CONTENT DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM	
	18	0	2	3	2	0	0	0	7	

DIET ITEMS N=18	CODE	# STOM	N	%	NAME
	UY6	10	79	43.9	HARPACTICOID ADULT
	MM0	3	3	1.7	GAMMARIDAE
	ΩUU	5	11	6.1	GAMMERIDEAE
	Y55	3	5	2.8	DIPTERA
	Y63	2	2	1.1	CHIRONOMIDAE LARVA
	YM1	8	68	37.8	SHRIMP LARVA
	MM5	2	2	1.1	COROPHIIDAE
	MA0	5	8	4.4	MYSIDACEA GENERAL
	001	1	2	1.1	LARVAL FISHES

RED

	N= 7	AVERAGE LENGTH (MM)		38.	S.E.		0.84			
	N= 7	AVERAGE WEIGHT (G)		0.48	S.E.		0.03			
	N= 7	AVERAGE WEIGHT (MG)		0.6	%		0.62			
STOMACH CONTENT DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM	
	7	0	0	0	0	0	0	0	1	

DIET ITEMS N= 7	CODE	# STOM	N	%	NAME
	UY6	4	6	100.0	HARPACTICOID ADULT

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK GREEN
57.	3	3

GREEN

	N= 3	AVERAGE LENGTH (MM)		41.	S.E.		0.33			
	N= 3	AVERAGE WEIGHT (G)		0.80	S.E.		0.06			
	N= 3	AVERAGE WEIGHT (MG)		6.5	%		4.10			
STOMACH CONTENT DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM	
	3	0	0	0	0	0	1	0	1	

STARRY FLOUNDER-PLATICHTHYS STELLATUS CATCH 3.

THREESPINE STICKLEBACK-GASTEROSTEUS ACULEATUS CATCH 11.

SHINER PERCH-CYMATOGASTER AGGREGATA CATCH 2.

24APR75 1630HR AREA 18 7 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT SW

WEATHER CONDITIONS AT SET TIME	SUMMARY FOR DAY		TIDES PST	FEET	METERS
WIND DIRECTION	MAX TEMP (C)	10.6	340	15.1	4.60
SPEED (KM/H)	MIN TEMP (C)	5.0	1015	3.9	1.19
CLOUD (/10)	PRECIP. (MM)	8.1	1650	14.2	4.33
SEA	SUN (HR)	0.8	2220	8.1	2.47

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK ORANGE	GREEN	RED	BL/OR
1661.	19	1	4	10	4

UNMARKED FISH

N= 54	AVERAGE LENGTH (MM)	42.	S.E.		0.76
N= 54	AVERAGE WEIGHT (G)	0.63	S.E.		0.04

ORANGE

N= 1	AVERAGE LENGTH (MM)	53.	S.E.		0.00
N= 1	AVERAGE WEIGHT (G)	1.79	S.E.		0.00

GREEN

N= 4	AVERAGE LENGTH (MM)	45.	S.E.		1.41
N= 4	AVERAGE WEIGHT (G)	0.88	S.E.		0.11
N= 4	AVERAGE WEIGHT (MG)	2.3	%		1.27

STOMACH CONTENT DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
4	0	16	3	0	0	0	0	18

DIET ITEMS N= 4

CODE	# STOM	N	%	NAME
UY0	4	72	96.0	HARPACTICOID GENERAL
Y63	1	1	1.3	CHIRONOMIDAE LARVA
X60	1	2	2.7	INSECTA GENERAL

RED

N= 10	AVERAGE LENGTH (MM)	39.	S.E.		0.52
N= 10	AVERAGE WEIGHT (G)	0.51	S.E.		0.02
N= 10	AVERAGE WEIGHT (MG)	1.1	%		1.07

STOMACH CONTENT DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
10	0	3	1	0	0	0	0	5

DIET ITEMS N=10

CODE	# STOM	N	%	NAME
UY0	9	45	90.0	HARPACTICOID GENERAL
Y55	2	2	4.0	DIPTERA
XR0	1	2	4.0	DECAPODA GENERAL
Y63	1	1	2.0	CHIRONOMIDAE LARVA

BL/OR

N= 4	AVERAGE LENGTH (MM)	37.	S.E.		0.41
N= 4	AVERAGE WEIGHT (G)	0.42	S.E.		0.03
N= 4	AVERAGE WEIGHT (MG)	0.8	%		0.89

STOMACH CONTENT DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
4	0	1	0	0	0	0	0	1

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK BL/OR
36.	1	1

UNMARKED FISH

N= 20	AVERAGE LENGTH (MM)	42.	S.E.		1.28
N= 20	AVERAGE WEIGHT (G)	0.90	S.E.		0.14

BL/OR

N= 1	AVERAGE LENGTH (MM)	40.	S.E.		0.00
N= 1	AVERAGE WEIGHT (G)	0.59	S.E.		0.00
N= 1	AVERAGE WEIGHT (MG)	3.4	%		2.88

STOMACH CONTENT DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
1	0	0	0	0	0	0	0	0

SURF SMELT-HYPOMESUS PRETIOSUS PRETICSUS	CATCH	1.	
THREESPINE STICKLEBACK-GASTEROSTEUS ACULEATUS	CATCH	2.	S
PADDED SCULPIN-ARTEDIUS FENESTRALIS	CATCH	3.	MU

WI

CH

1.

2. 1MAY75 1430HR AREA 19 5 SETS

3. MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS AT SET TIME	SUMMARY FOR DAY	TIDES PST	FEET	METERS
WIND DIRECTION	MAX TEMP (C) 18.3	410	10.3	3.14
SPEED (KM/H)	MIN TEMP (C) 1.7	810	11.7	3.57
CLOUD (/10)	PRECIP. (MM) 0.0	1520	4.2	1.28
SEA	SUN (HR) 9.3	2305	14.2	4.33

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK GREEN	RED	BL/OR	GR/OR
1676.	22	1	7	1	13

UNMARKED FISH

N= 32 AVERAGE LENGTH (MM) 40. S.E. 0.45
N= 32 AVERAGE WEIGHT (G) 0.58 S.E. 0.02
STOMACH CONTENT N= 30 AVERAGE WEIGHT (MG) 5.1 % 4.40

DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
	30	175	50	14	3	1	0	0	241

GREEN

N= 1 AVERAGE LENGTH (MM) 45. S.E. 0.00
N= 1 AVERAGE WEIGHT (G) 0.95 S.E. 0.00
STOMACH CONTENT N= 1 AVERAGE WEIGHT (MG) 1.0 % 0.53

DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
	1	3	2	0	0	0	0	0	5

DIET ITEMS N= 1 CODE	# STOM	N	%	NAME
UY0	1	2	40.0	HARPACTICOID GENERAL
ZK0	1	2	40.0	GASTROPODA GENERAL
VY1	1	1	20.0	CIRRIPEDIA NAUPLIUS

RED

N= 7 AVERAGE LENGTH (MM) 41. S.E. 1.32
N= 7 AVERAGE WEIGHT (G) 0.74 S.E. 0.06
STOMACH CONTENT N= 7 AVERAGE WEIGHT (MG) 7.5 % 5.11

DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
	7	94	44	21	1	1	0	0	161

DIET ITEMS N= 7 CODE	# STOM	N	%	NAME
UY0	6	1067	91.7	HARPACTICOID GENERAL
WU0	6	50	4.3	GAMMERIDEAE
WW5	2	4	0.3	COROPHIIDAE
Y55	4	14	1.2	DIPTERA
Y57	3	7	0.6	DIPTERA LARVA
YH1	1	2	0.2	SHRIMP LARVA
Y63	4	9	0.8	CHIRONOMIDAE LARVA
Y95	3	3	0.3	THYSANOPTERA
VY2	2	2	0.2	CIRRIPEDIA CYPRID
XS1	1	2	0.2	CRAB ZOEA
W10	1	1	0.1	TANAIDACEAE
WW0	1	2	0.2	GAMMARIDAE
ZI0	1	1	0.1	

BL/OR

N= 1 AVERAGE LENGTH (MM) 38. S.E. 0.00
N= 1 AVERAGE WEIGHT (G) 0.45 S.E. 0.00
STOMACH CONTENT N= 1 AVERAGE WEIGHT (MG) 0.8 % 0.89

DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
	1	0	2	0	0	0	0	0	2

DIET ITEMS N= 1 CODE	# STOM	N	%	NAME
UY0	1	5	100.0	HARPACTICOID GENERAL

GR/OR

N= 12 AVERAGE LENGTH (MM) 38. S.E. 0.48
N= 12 AVERAGE WEIGHT (G) 0.43 S.E. 0.02
STOMACH CONTENT N= 12 AVERAGE WEIGHT (MG) 1.3 % 1.48

DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM

	12	28	11	2	0	0	0	0	41
DIET ITEMS N=12 CODE	# STOM	N	%	NAME					
UY0	11	468	90.7	HARPACTICOID GENERAL					
WU0	1	1	0.2	GAMMERIDEAE					
Y55	5	10	1.9	DIPTERA					
WW0	2	22	4.3	GAMMARIDAE					
WW5	2	2	0.4	COROPHIIDAE					
Y95	2	2	0.4	THYSANOPTERA					
WL5	1	1	0.2	LEPTOCUMA SP.					
RM0	1	1	0.2	CALANUS PACIFICUS					
ZK0	1	3	0.6	GASTROPODA GENERAL					
Y63	2	2	0.4	CHIRONOMIDAE LARVA					
Y64	1	1	0.2	CHIRONOMIDAE PUPA					
RK0	2	3	0.6	COPEPODA GENERAL					

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK GREEN	RED
193.	2	1	1

UNMARKED FISH

N= 3	AVERAGE LENGTH (MM)	42.	S.E.	1.20					
N= 3	AVERAGE WEIGHT (G)	0.83	S.E.	0.10					
STOMACH CONTENT N= 3	AVERAGE WEIGHT (MG)	10.1	%	6.06					
DIET BY SIZE (MM) N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM	
3	2	3	9	22	0	0	0	37	

GREEN

N= 1	AVERAGE LENGTH (MM)	48.	S.E.	0.00					
N= 1	AVERAGE WEIGHT (G)	1.38	S.E.	0.00					
STOMACH CONTENT N= 1	AVERAGE WEIGHT (MG)	0.0	%	0.00					
DIET BY SIZE (MM) N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM	
1	0	0	0	0	0	0	0	0	

DIET ITEMS N= 1 CODE # STOM N % NAME
RED

N= 1	AVERAGE LENGTH (MM)	45.	S.E.	0.00					
N= 1	AVERAGE WEIGHT (G)	0.99	S.E.	0.00					
STOMACH CONTENT N= 1	AVERAGE WEIGHT (MG)	0.0	%	0.00					
DIET BY SIZE (MM) N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM	
1	0	0	0	0	0	0	0	0	

STARRY FLOUNDER-PLATICHTHYS STELLATUS	CATCH	12.
CRESCENT GUNNEL-PHOLIS LAETA	CATCH	9.
SADDLEBACK GUNNEL-PHOLIS ORNATA	CATCH	7.
THREESPINE STICKLEBACK-GASTEROSTEUS ACULEATUS	CATCH	139.
BAY PIPEFISH-SYNGNATHUS GRISEOLINEATUS	CATCH	6.
PACIFIC SAND LANCE-AMMODYTES HEXAPTERUS	CATCH	1.
PRICKLY SCULPIN-COTTUS ASPER	CATCH	26.
TIDEPOOL SCULPIN-OLIGOCOTTUS MACULOSUS	CATCH	4.
PACIFIC STAGHORN SCULPIN-LEPTOCOTTUS ARMATUS	CATCH	1.
KELP GREENLING-HEXAGRAMMOS DECAGRAMMUS	CATCH	1.
SHINER PERCH-CYMATOGASTER AGGREGATA	CATCH	1.

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 8MAY75     1400HR          AREA  19                                    1 SET

MUDFLAT BEACH SEINES        NANAIMO RIVER MUDFLAT E

          WEATHER CONDITIONS                                    TIDES
     AT SET TIME              SUMMARY FOR DAY            PST  FEET  METERS
WIND DIRECTION                MAX TEMP (C)   20.0        250  13.6   4.15
  SPEED (KM/H)                MIN TEMP (C)    2.6        950   4.9   1.49
   CLOUD (/10)                PRECIP. (MM)    0.0       1645  12.8   3.90
          SEA                 SUN      (HR)  12.7       2150   9.7   2.96

CHUM SALMON-ONCORHYNCHUS KETA
              TOTAL   TOTAL   CATCH BY TYPE OF MARK
              CATCH   MARKS   GREEN    RED   BL/OR   GR/OR
              9769.     130      14     22      14      80

   UNMARKED FISH
                          N= 50  AVERAGE LENGTH (MM)    43. S.E.    0.77
                          N= 50  AVERAGE WEIGHT (G)    0.77 S.E.    0.05
        STOMACH CONTENT   N= 20  AVERAGE WEIGHT (MG)    4.6   %      2.98
     DIET BY SIZE (MM)     N    <1.0 -1.5  -2.5  -4.0  -8.0  -15.   >15   SUM
                           5      6  114    15     7     0     0     0   142
     DIET ITEMS N= 5 CODE # STOM     N      %  NAME
                      UY0     5   641   73.7  HARPACTICOID GENERAL
                      YH1     5   169   19.4  SHRIMP LARVA
                      MA0     2     4    0.5  MYSIDACEA GENERAL
                      SN0     2    14    1.6  CENTROPAGES ABDOMINALIS
                      MU0     1    13    1.5  GAMMERIDEAE
                      MM0     2     9    1.0  GAMMARIDAE
                      MM5     1     3    0.3  COROPHIIDAE
                      VY1     1     1    0.1  CIRRIPEDIA NAUPLIUS
                      Y55     2     3    0.3  DIPTERA
                      X63     2    12    1.4  INSECTA PUPA
                      VY2     1     1    0.1  CIRRIPEDIA CYPRID

   GREEN
                          N=  4  AVERAGE LENGTH (MM)    54. S.E.    0.85
                          N=  4  AVERAGE WEIGHT (G)   1.64 S.E.    0.10
        STOMACH CONTENT   N=  4  AVERAGE WEIGHT (MG)   16.8   %      5.13
     DIET BY SIZE (MM)     N    <1.0 -1.5  -2.5  -4.0  -8.0  -15.   >15   SUM
                           4      5  190    37    91     0     0     0   323
     DIET ITEMS N= 4 CODE # STOM     N      %  NAME
                      UY0     4   868   70.4  HARPACTICOID GENERAL
                      YH1     4   311   25.2  SHRIMP LARVA
                      Y60     2     3    0.2  CHIRONOMIDAE
                      MM0     4    13    1.1  GAMMARIDAE
                      MM5     3     7    0.6  COROPHIIDAE
                      Y95     1     1    0.1  THYSANOPTERA
                      ZK3     1     1    0.1  GASTROPODA EGG CASE
                      ML5     1     1    0.1  LEPTOCUMA SP.
                      SY0     1    27    2.2  EURYTEMORA HIRUNDOIDES
                      VY1     1     1    0.1  CIRRIPEDIA NAUPLIUS

   RED
                          N=  6  AVERAGE LENGTH (MM)    49. S.E.    0.71
                          N=  6  AVERAGE WEIGHT (G)   1.17 S.E.    0.07
        STOMACH CONTENT   N=  6  AVERAGE WEIGHT (MG)   13.8   %      5.89
     DIET BY SIZE (MM)     N    <1.0 -1.5  -2.5  -4.0  -8.0  -15.   >15   SUM
                           6    176  243    34    43     0     0     0   475
     DIET ITEMS N= 6 CODE # STOM     N      %  NAME
                      YH1     6   249    8.3  SHRIMP LARVA
                      UY0     6  2696   89.5  HARPACTICOID GENERAL
                      SN0     2     4    0.1  CENTROPAGES ABDOMINALIS
                      MU0     4     4    0.1  GAMMERIDEAE
                      Y63     5     7    0.2  CHIRONOMIDAE LARVA
                      MM5     5    15    0.5  COROPHIIDAE
                      MX5     5    21    0.7  EUSIRIDAE
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WW1	2	3	0.1	EUDORELLA SP.
WA0	4	10	0.3	MYSIDACEA GENERAL
VY2	1	1	0.0	CIRRIPEDIA CYPRID
Y58	1	1	0.0	DIPTERA PUPA
WW0	1	1	0.0	GAMMARIDAE

BL/OR

	N= 4	AVERAGE LENGTH (MM) 45.	S.E. 1.44
	N= 4	AVERAGE WEIGHT (G) 0.85	S.E. 0.09
STOMACH CONTENT	N= 4	AVERAGE WEIGHT (MG) 12.3	% 7.23

DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
	4	106	101	66	44	0	0	0	377

DIET ITEMS N= 4 CODE	# STOM	N	%	NAME
WW5	2	2	0.1	COROPHIIDAE
WU0	1	2	0.1	GAMMERIDEAE
UY0	4	1297	85.3	HARPACTICOID GENERAL
YH1	4	171	11.2	SHRIMP LARVA
WW0	4	24	1.6	GAMMARIDAE
VY1	1	1	0.1	CIRRIPEDIA NAUPLIUS
UZ9	1	2	0.1	PORCELLIDIDAE
SX0	2	3	0.2	EURYTEMORA AMERICANA
BW0	1	6	0.4	CERATAULINA
X62	1	1	0.1	INSECTA LARVA
XM6	3	6	0.4	EUPHAUSIACEA POST-NAUPLIAR
UK0	3	6	0.4	CYCLOPOID GENERAL

GR/OR

	N= 22	AVERAGE LENGTH (MM) 41.	S.E. 0.80
	N= 22	AVERAGE WEIGHT (G) 0.65	S.E. 0.04
STOMACH CONTENT	N= 22	AVERAGE WEIGHT (MG) 7.0	% 5.39

DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
	22	32	56	43	15	0	0	0	145

DIET ITEMS N=22 CODE	# STOM	N	%	NAME
UY0	22	2671	79.3	HARPACTICOID GENERAL
WA0	7	130	3.9	MYSIDACEA GENERAL
YH1	17	453	13.5	SHRIMP LARVA
SW0	8	30	0.9	EURYTEMORA SP.
RK0	2	6	0.2	COPEPODA GENERAL
RN0	1	1	0.0	CALANUS PLUMCHRUS
WU0	20	60	1.8	GAMMERIDEAE
VY1	1	1	0.0	CIRRIPEDIA NAUPLIUS
X60	2	2	0.1	INSECTA GENERAL
WW5	4	4	0.1	COROPHIIDAE
Y63	2	2	0.1	CHIRONOMIDAE LARVA
WL5	2	2	0.1	LEPTOCUMA SP.
Y55	1	1	0.0	DIPTERA
Y58	2	2	0.1	DIPTERA PUPA
WX8	1	1	0.0	PLEUSTIDAE
SA0	1	1	0.0	METRIDIA PACIFICA
VY2	1	1	0.0	CIRRIPEDIA CYPRID

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK RED
231.	4	4

UNMARKED FISH

	N= 20	AVERAGE WEIGHT (G) 1.25	S.E. 0.86
STOMACH CONTENT	N= 20	AVERAGE WEIGHT (MG) 4.1	% 1.64

RED

	N= 1	AVERAGE LENGTH (MM) 51.	S.E. 0.00
	N= 1	AVERAGE WEIGHT (G) 1.47	S.E. 0.00
STOMACH CONTENT	N= 1	AVERAGE WEIGHT (MG) 11.2	% 3.81

DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
	1	0	3	11	10	0	0	0	24

DIET ITEMS N= 1 CODE	# STOM	N	%	NAME
YH1	1	46	73.0	SHRIMP LARVA
SW0	1	3	4.8	EURYTEMORA SP.
UY0	1	12	19.0	HARPACTICOID GENERAL
WU0	1	1	1.6	GAMMERIDEAE
WW5	1	1	1.6	COROPHIIDAE

14MAY75 1200HR AREA 19 DEPTH 2 2 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

	SUMMARY FOR DAY		TIDES PST	FEET	METERS
AT SET TIME	MAX TEMP (C)	22.2	115	10.9	3.32
WIND DIRECTION	MIN TEMP (C)	7.2	600	13.5	4.11
SPEED (KM/H)	PRECIP. (MM)	0.0	1315	2.1	0.64
CLOUD (/10)	SUN (HR)	3.1	2055	14.6	4.51
SEA					

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK GR/OR
8820.	67	67

UNMARKED FISH

N= 40 AVERAGE LENGTH (MM) 42. S.E. 0.68
N= 40 AVERAGE WEIGHT (G) 0.69 S.E. 0.04
N= 20 AVERAGE WEIGHT (MG) 0.8 % 0.58

STOMACH CONTENT
DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
5	31	1	0	0	0	0	0	32

DIET ITEMS N= 5

CODE	# STOM	N	%	NAME
UY0	3	4	2.5	HARPACTICOID GENERAL
VY2	2	6	3.7	CIRRIPEDIA CYPRID
VY1	4	100	62.1	CIRRIPEDIA NAUPLIUS
KK4	2	49	30.4	COPEPODA SMALL
X63	1	1	0.6	INSECTA PUPA
KK0	1	1	0.6	COPEPODA GENERAL

GR/OR

N= 10 AVERAGE LENGTH (MM) 41. S.E. 0.70
N= 10 AVERAGE WEIGHT (G) 0.64 S.E. 0.03
N= 10 AVERAGE WEIGHT (MG) 1.4 % 1.07

STOMACH CONTENT
DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
10	67	5	0	0	0	0	0	72

DIET ITEMS N=10

CODE	# STOM	N	%	NAME
UY0	6	332	45.9	HARPACTICOID GENERAL
X60	1	1	0.1	INSECTA GENERAL
VY1	5	333	46.1	CIRRIPEDIA NAUPLIUS
A70	3	9	1.2	CYPHONAUTES SP.
MM5	2	2	0.3	COROPHIIDAE
MX5	1	43	5.9	EUSIRIDAE
YH1	1	1	0.1	SHRIMP LARVA
SN0	1	1	0.1	CENTROPAGES ABDOMINALIS
XM2	1	1	0.1	EUPHAUSIACEA NAUPLIUS

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK GR/OR
202.	3	3

UNMARKED FISH

N= 23 AVERAGE LENGTH (MM) 48. S.E. 1.36
N= 23 AVERAGE WEIGHT (G) 1.30 S.E. 0.13
N= 23 AVERAGE WEIGHT (MG) 0.1 % 0.04

STOMACH CONTENT
DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
23	0	0	0	0	0	0	0	0

DIET ITEMS N=23

CODE	# STOM	N	%	NAME
UY0	1	1	100.0	HARPACTICOID GENERAL

GR/OR

N= 2 AVERAGE LENGTH (MM) 50. S.E. 1.00
N= 2 AVERAGE WEIGHT (G) 1.41 S.E. 0.10
N= 2 AVERAGE WEIGHT (MG) 0.0 % 0.00

STOMACH CONTENT
DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
2	0	0	0	0	0	0	0	0

DIET ITEMS N= 2

CODE	# STOM	N	%	NAME

16MAY75 900HR AREA 18 8 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT SA

WEATHER CONDITIONS
AT SET TIME
WIND DIRECTION
SPEED (KM/H)
CLOUD (/10)
SEA

SUMMARY FOR DAY
MAX TEMP (C) 18.3
MIN TEMP (C) 8.3
PRECIP. (MM) 0.0
SUN (HR) 7.9

TIDES
PST FEET METERS
320 10.7 3.26
735 12.5 3.81
1450 3.1 0.94
2235 15.0 4.57

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK GR/OR
1105.	3	3

UNMARKED FISH

N= 29 AVERAGE LENGTH (MM) 41. S.E. 0.72
N= 29 AVERAGE WEIGHT (G) 0.66 S.E. 0.04
N= 29 AVERAGE WEIGHT (MG) 4.2 % 3.06

STOMACH CONTENT
DIET BY SIZE (MM)

	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
	29	1	1	3	10	1	0	0	16

DIET ITEMS N=30

CODE	# STOM	N	%	NAME
Y55	21	59	10.0	DIPTERA
WW5	17	78	13.2	CORDPHIIDAE
Y63	16	32	5.4	CHIRONOMIDAE LARVA
X63	10	64	10.9	INSECTA PUPA
UY0	7	25	4.2	HARPACTICOID GENERAL
YH1	10	281	47.7	SHRIMP LARVA
SW0	2	4	0.7	EURYTEMORA SP.
X70	2	2	0.3	COLLEMBOLA
Z60	5	7	1.2	ACARINA
WI0	4	12	2.0	TANAIDACEAE
VY2	1	1	0.2	CIRRIPEDIA CYPRID
VY1	1	9	1.5	CIRRIPEDIA NAUPLIUS
XM6	2	4	0.7	EUPHAUSIACEA POST-NAUPLIAR
WU0	2	3	0.5	GAMMERIDEAE
X60	2	3	0.5	INSECTA GENERAL
RK0	2	2	0.3	COPEPODA GENERAL
X62	2	2	0.3	INSECTA LARVA
Y95	1	1	0.2	THYSANOPTERA

GR/OR

N= 3 AVERAGE LENGTH (MM) 44. S.E. 2.40
N= 3 AVERAGE WEIGHT (G) 0.83 S.E. 0.14
N= 3 AVERAGE WEIGHT (MG) 5.1 % 3.08

STOMACH CONTENT
DIET BY SIZE (MM)

	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
	3	19	1	1	4	7	0	0	33

DIET ITEMS N= 3

CODE	# STOM	N	%	NAME
WW5	1	1	1.0	CORDPHIIDAE
SN0	2	4	4.1	CENTROPAGES ABDOMINALIS
YH1	2	31	32.0	SHRIMP LARVA
Y55	1	2	2.1	DIPTERA
X62	1	1	1.0	INSECTA LARVA
D60	1	43	44.3	EGGS GENERAL
UY0	1	11	11.3	HARPACTICOID GENERAL
VY2	1	1	1.0	CIRRIPEDIA CYPRID
Y63	1	1	1.0	CHIRONOMIDAE LARVA
WX5	1	1	1.0	EUSIRIDAE
Y58	1	1	1.0	DIPTERA PUPA

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK GR/OR
82.	2	2

UNMARKED FISH

N= 1 AVERAGE LENGTH (MM) 36. S.E. 0.00
N= 1 AVERAGE WEIGHT (G) 0.60 S.E. 0.00
N= 1 AVERAGE WEIGHT (MG) 3.0 % 2.50

STOMACH CONTENT
DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
1	0	0	0	1	0	0	0	1

GR/OR

N= 2 AVERAGE LENGTH (MM) 40. S.E. 1.00
N= 2 AVERAGE WEIGHT (G) 0.67 S.E. 0.05
N= 2 AVERAGE WEIGHT (MG) 2.8 % 2.07

STOMACH CONTENT
DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
2	21	1	4	3	0	0	0	28

DIET ITEMS N= 2

CODE	# STOM	N	%	NAME
Y55	2	10	17.9	DIPTERA
Y63	1	2	3.6	CHIRONOMIDAE LARVA
D60	1	38	67.9	EGGS GENERAL
UY0	1	4	7.1	HARPACTICOID GENERAL
SN0	1	1	1.8	CENTROPAGES ABDOMINALIS
MU0	1	1	1.8	GAMMERIDEAE

23MAY75 1100HR AREA 18 3 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT SE

WEATHER CONDITIONS AT SET TIME
WIND DIRECTION NW
SPEED (KM/H) 24
CLOUD (/10) 5
SEA CHOP

SUMMARY FOR DAY
MAX TEMP (C) 15.6
MIN TEMP (C) 3.3
PRECIP. (MM) 0.0
SUN (HR) 7.9

TIDES

PST	FEET	METERS
250	14.9	4.54
955	2.5	0.76
1705	14.5	4.42
2205	10.3	3.14

CHUM SALMON-ONCORHYNCHUS KETA CATCH 202.

N= 50 AVERAGE LENGTH (MM) 42. S.E. 0.72
N= 50 AVERAGE WEIGHT (G) 0.67 S.E. 0.05
N= 20 AVERAGE WEIGHT (MG) 5.6 % 4.19

STOMACH CONTENT
DIET BY SIZE (MM)

N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
5	17	51	16	13	0	0	0	98

DIET ITEMS N= 5

CODE	# STOM	N	%	NAME
UY0	5	155	28.1	HARPACTICOID GENERAL
AA9	5	193	35.0	CALLIOPIIDAE
SY0	4	101	18.3	EURYTEMORA HIRUNDOIDES
XM2	1	8	1.5	EUPHAUSIACEA NAUPLIUS
Y63	1	1	0.2	CHIRONOMIDAE LARVA
AJ0	1	1	0.2	CUMACEA GENERAL
RR0	2	36	6.5	PSEUDOCALANUS MINUTUS
AI0	3	46	8.3	TANAIDACEAE
YH1	1	4	0.7	SHRIMP LARVA
XM6	1	2	0.4	EUPHAUSIACEA POST-NAUPLIAR
D56	1	3	0.5	SEAWEED GENERAL
X90	1	1	0.2	EPHEMEROPTERA

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA CATCH 250.

29MAY75 1300HR AREA 19 DEPTH 2 2 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME	
WIND DIRECTION	NW
SPEED (KM/H)	8
CLOUD (/10)	2
SEA RIPPLE	

SUMMARY FOR DAY

MAX TEMP (C)	22.8
MIN TEMP (C)	7.2
PRECIP. (MM)	0.0
SUN (HR)	12.0

TIDES

PST	FEET	METERS
235	10.3	3.14
655	12.2	3.72
1400	3.5	1.07
2130	14.6	4.45

CHUM SALMON-ONCORHYNCHUS KETA CATCH 236.

N= 50 AVERAGE LENGTH (MM) 42. S.E. 0.67

N= 50 AVERAGE WEIGHT (G) 0.67 S.E. 0.03

N= 20 AVERAGE WEIGHT (MG) 5.0 % 3.74

STOMACH CONTENT

DIET BY SIZE (MM)	N	<1.0	-1.5	-2.5	-4.0	-8.0	-15.	>15	SUM
	5	31	13	84	10	0	0	0	139

DIET ITEMS N= 5

CODE	# STOM	N	%	NAME
MA9	5	304	43.5	CALLIOPIIDAE
SY0	2	5	0.7	EURYTEMORA HIRUNDOIDES
UY0	5	223	31.9	HARPACTICOID GENERAL
001	2	2	0.3	LARVAL FISHES
MI0	5	152	21.7	TANAIDACEAE
Y60	3	3	0.4	CHIRONOMIDAE
Y63	3	3	0.4	CHIRONOMIDAE LARVA
XM0	2	4	0.6	EUPHAUSIACEA GENERAL
ML2	1	1	0.1	CUMELLA SP.
Y55	1	1	0.1	DIPTERA
RG1	1	1	0.1	USTRACODA GENERAL

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA CATCH 194.

N= 30 AVERAGE LENGTH (MM) 49. S.E. 0.50

N= 30 AVERAGE WEIGHT (G) 1.25 S.E. 0.05

STICKLEBACKS-FAMILY GASTEROSTEIDAE CATCH 11.

CRESCENT GUNNEL-PHOLIS LAETA CATCH 11.

SCULPINS-FAMILY COTTIDAE CATCH 9.

15 | 8JUN75 1500HR AREA 18 3 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT SW

WEATHER CONDITIONS

AT SET TIME
WIND DIRECTION
SPEED (KM/H)
CLOUD (/10)
SEA

SUMMARY FOR DAY

MAX TEMP (C)	16.9	
MIN TEMP (C)	8.9	
PRECIP. (MM)	0.0	
SUN (HR)	9.3	

TIDES

PST	FEET	METERS
140	13.8	4.21
905	4.2	1.28
1645	13.0	3.96
2115	11.0	3.35

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA — CATCH 18.
N= 17 AVERAGE LENGTH (MM) 58. S.E. 1.69
N= 17 AVERAGE WEIGHT (G) 2.47 S.E. 0.24

SILVER PERCH-CYMATOGASTER AGGREGATA — CATCH 28.

THREESPINE STICKLEBACK-GASTEROSTEUS ACULEATUS — CATCH 26.

PACIFIC STAGHORN SCULPIN-LEPTOCOTTUS ARMATUS — CATCH 4.

PRICKLY SCULPIN-COTTUS ASPER — CATCH 5.

18MAR76 1320HR AREA 19 DEPTH 2 4 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME	
WIND DIRECTION	SE
SPEED (KM/H)	32-40
CLOUD (/10)	10
SEA	

SUMMARY FOR DAY

MAX TEMP (C)	10.0
MIN TEMP (C)	3.3
PRECIP. (MM)	5.1
SUN (HR)	0.5

TIDES

PST	FEET	METERS
35	0.9	2.10
630	15.5	4.72
1300	3.6	1.10
1940	14.5	4.42

CHUM SALMON-ONCORHYNCHUS KETA — CATCH 19.

N= 19	AVERAGE LENGTH (MM)	36.	S.E.	0.32
N= 19	AVERAGE WEIGHT (G)	0.34	S.E.	-0.00
STOMACH CONTENT N= 19	AVERAGE WEIGHT (MG)	1.7	%	2.52

PINK SALMON-ONCORHYNCHUS GORBUSCHA — CATCH 1.

N= 1	AVERAGE LENGTH (MM)	31.	S.E.	0.00
N= 1	AVERAGE WEIGHT (G)	0.22	S.E.	0.00

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA — CATCH 1.

N= 1	AVERAGE LENGTH (MM)	41.	S.E.	0.00
N= 1	AVERAGE WEIGHT (G)	0.64	S.E.	0.00
STOMACH CONTENT N= 1	AVERAGE WEIGHT (MG)	1.8	%	1.41

STICKLEBACKS-FAMILY GASTEROSTEIDAE

STARRY FLOUNDER-PLATICHTHYS STELLATUS

SCULPINS-FAMILY COTTIDAE

GUNNELS-FAMILY PHOLIDAE

24 AUG 76 1330HR AREA 19 6 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME

WIND DIRECTION NW

SPEED (KM/H)

CLOUD (/10) 0

SEA

SUMMARY FOR DAY

MAX TEMP (C) 11.7

MIN TEMP (C) -2.2

PRECIP. (MM) 0.0

SUN (HR) 9.1

TIDES

PST	FEET	METERS
45	8.9	2.71
610	13.6	4.15
1305	4.3	1.31
1950	13.5	4.11

CHUM SALMON-ONCORHYNCHUS KETA CATCH 792.

N= 50	AVERAGE LENGTH (MM)	37.	S.E.	0.33
N= 50	AVERAGE WEIGHT (G)	0.49	S.E.	0.00
STOMACH CONTENT N= 20	AVERAGE WEIGHT (MG)	1.5	%	1.58

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA CATCH 1.

N= 1	AVERAGE LENGTH (MM)	40.	S.E.	0.00
N= 1	AVERAGE WEIGHT (G)	0.70	S.E.	0.00
STOMACH CONTENT N= 1	AVERAGE WEIGHT (MG)	2.4	%	1.71

FLOUNDERS-GENERAL

SCULPINS-FAMILY COTTIDAE

GUNNELS-FAMILY PHOLIDAE

SHINER PERCH-CYMATOGASTER AGGREGATA

STICKLEBACKS-FAMILY GASTEROSTEIDAE

6APR76 1515HR AREA 19 6 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME
WIND DIRECTION E
SPEED (KM/H)
CLOUD (/10) 0
SEA

SUMMARY FOR DAY

MAX TEMP (C) 13.9
MIN TEMP (C) 3.3
PRECIP. (MM) 5.8
SUN (HR) 7.9

TIDES

	PST	FEET	METERS
	350	10.7	3.26
	825	12.3	3.75
	1550	4.6	1.40
	2330	13.5	4.11

DEPTH (M)	0.00	0.00
TEMPERATURE (C)	9.44	14.44

CHUM SALMON-ONCORHYNCHUS KETA — CATCH 1389.

N= 47	AVERAGE LENGTH (MM)	40.	S.E.	0.55
N= 47	AVERAGE WEIGHT (G)	0.68	S.E.	0.00
STOMACH CONTENT N= 20	AVERAGE WEIGHT (MG)	2.8	%	2.10

PINK SALMON-ONCORHYNCHUS GORBUSCHA — CATCH 20.

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA — CATCH 3.

N= 2	AVERAGE LENGTH (MM)	43.	S.E.	0.50
N= 2	AVERAGE WEIGHT (G)	0.88	S.E.	0.02
STOMACH CONTENT N= 2	AVERAGE WEIGHT (MG)	3.0	%	2.05

GUNNELS-FAMILY PHOLIDAE

FLOUNDERS-GENERAL

STICKLEBACKS-FAMILY GASTEROSTEIDAE

SCULPINS-FAMILY COTTIDAE

SHINER PERCH-CYMATOGASTER AGGREGATA

SETS | 13APR76 1100HR AREA 19 10 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

TEMS	WEATHER CONDITIONS AT SET TIME		SUMMARY FOR DAY		TIDES PST	FEET	METERS
3.26	WIND DIRECTION	NW	MAX TEMP (C)	13.9	405	15.2	4.63
3.75	SPEED (KM/H)	24-32	MIN TEMP (C)	-0.6	1040	4.6	1.40
1.40	CLOUD (/10)	0	PRECIP. (MM)	0.0	1650	14.1	4.30
4.11	SEA LT CHP		SUN (HR)	11.6	2235	7.2	2.19

	DEPTH (M)	0.00	0.00
	TEMPERATURE (C)	7.22	12.22

CHUM SALMON-ONCORHYNCHUS KETA

1389.		TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK RED
0.55		445.	5	5
0.00				
2.10				

20.	UNMARKED FISH	N= 50	AVERAGE LENGTH (MM)	37.	S.E.	0.54
3.		N= 50	AVERAGE WEIGHT (G)	0.51	S.E.	0.00
0.50	STOMACH CONTENT	N= 20	AVERAGE WEIGHT (MG)	1.3	%	1.27
0.02	RED					
2.05		N= 5	AVERAGE LENGTH (MM)	36.	S.E.	0.40
		N= 5	AVERAGE WEIGHT (G)	0.43	S.E.	0.02

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA CATCH 7.

	N= 6	AVERAGE LENGTH (MM)	41.	S.E.	2.34
	N= 6	AVERAGE WEIGHT (G)	0.77	S.E.	0.19
STOMACH CONTENT	N= 6	AVERAGE WEIGHT (MG)	1.6	%	1.03

SCULPINS-FAMILY COTTIDAE

GUNNELS-FAMILY PHOLIDAE

FLOUNDERS-GENERAL

STICKLEBACKS-FAMILY GASTEROSTEIDAE

SHINER PERCH-CYMATOGASTER AGGREGATA

PIPEFISHES-FAMILY SYNGNATHIDAE

20APR76 1530HR AREA 19 DEPTH 2 0 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME	
WIND DIRECTION	NW
SPEED (KM/H)	6
CLOUD (/10)	4
SEA	

SUMMARY FOR DAY

MAX TEMP (C)	10.6
MIN TEMP (C)	3.3
PRECIP. (MM)	4.8
SUN (HR)	10.2

TIDES

PST	FEET	METERS
430	10.1	3.08
855	11.9	3.63
1605	4.2	1.28
2355	14.6	4.45

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK GREEN	RED
670.	4	1	3

UNMARKED FISH	N= 50	AVERAGE LENGTH (MM)	37.	S.E.	0.56
	N= 50	AVERAGE WEIGHT (G)	0.50	S.E.	0.00
STOMACH CONTENT	N= 20	AVERAGE WEIGHT (MG)	1.4	%	1.45
GREEN	N= 1	AVERAGE LENGTH (MM)	35.	S.E.	0.00
	N= 1	AVERAGE WEIGHT (G)	0.38	S.E.	0.00
RED	N= 3	AVERAGE LENGTH (MM)	37.	S.E.	1.15
	N= 3	AVERAGE WEIGHT (G)	0.47	S.E.	0.04

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK RED
30.	1	1

UNMARKED FISH	N= 29	AVERAGE LENGTH (MM)	43.	S.E.	0.59
	N= 29	AVERAGE WEIGHT (G)	0.93	S.E.	0.00
STOMACH CONTENT	N= 20	AVERAGE WEIGHT (MG)	2.0	%	1.42
RED	N= 1	AVERAGE LENGTH (MM)	50.	S.E.	0.00
	N= 1	AVERAGE WEIGHT (G)	1.37	S.E.	0.00

STICKLEBACKS-FAMILY GASTEROSTEIDAE

SCULPINS-FAMILY COTTIDAE

GUNNELS-FAMILY PHOLIDAE

FLOUNDERS-GENERAL

KELP GREENLING-HEXAGRAMMOS DECAGRAMMUS

SMELTS-FAMILY OSMERIDAE

SETS 27APR70 1130HR AREA 19 DEPTH 2 6 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME		SUMMARY FOR DAY		TIDES PST	FEET	METERS
WIND DIRECTION	CLM	MAX TEMP (C)	22.2	345	13.5	4.11
SPEED (KM/H)		MIN TEMP (C)	4.4	1025	5.0	1.52
CLOUD (/10)		PRECIP. (MM)	0.0	1720	13.1	3.99
SEA	CALM	SUN (HR)	12.4	2235	9.0	2.74

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK GREEN	RED
4134.	53	51	2

UNMARKED FISH

	N= 50	AVERAGE LENGTH (MM)	38.	S.E.	0.36
	N= 50	AVERAGE WEIGHT (G)	0.52	S.E.	0.00
STOMACH CONTENT	N= 20	AVERAGE WEIGHT (MG)	1.4	%	1.39

GREEN

	N= 30	AVERAGE LENGTH (MM)	35.	S.E.	0.27
	N= 30	AVERAGE WEIGHT (G)	0.38	S.E.	0.01

RED

	N= 1	AVERAGE LENGTH (MM)	42.	S.E.	0.00
	N= 1	AVERAGE WEIGHT (G)	0.79	S.E.	0.00

PINK SALMON-ONCORHYNCHUS GORBUSCHA CATCH 732.

	N= 50	AVERAGE LENGTH (MM)	35.	S.E.	0.22
	N= 50	AVERAGE WEIGHT (G)	0.34	S.E.	0.00
STOMACH CONTENT	N= 20	AVERAGE WEIGHT (MG)	0.4	%	0.66

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA CATCH 76.

	N= 36	AVERAGE LENGTH (MM)	41.	S.E.	0.56
	N= 36	AVERAGE WEIGHT (G)	0.82	S.E.	0.00
STOMACH CONTENT	N= 20	AVERAGE WEIGHT (MG)	2.9	%	1.80

GUNNELS-FAMILY PHOLIDAE

STICKLEBACKS-FAMILY GASTEROSTEIDAE

FLOUNDERS-GENERAL

SCULPINS-FAMILY COTTIDAE

PIPEFISHES-FAMILY SYNGNATHIDAE

4MAY76 1400HR AREA 19 DEPTH 2 6 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME		SUMMARY FOR DAY	
WIND DIRECTION	SE	MAX TEMP (C)	11.7
SPEED (KM/H)		MIN TEMP (C)	7.8
CLOUD (/10)	10	PRECIP. (MM)	3.3
SEA	CALM	SUN (HR)	0.4

TIDES

PST	FEET	METERS
250	10.7	3.26
705	12.4	3.78
1425	3.5	1.07
2210	14.4	4.39

DEPTH (M) 0.00
TEMPERATURE (C) 12.00

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK GREEN	RED
7065.	78	74	4

UNMARKED FISH

N= 50	AVERAGE LENGTH (MM)	41.	S.E.	0.51
N= 50	AVERAGE WEIGHT (G)	0.67	S.E.	0.00
N= 20	AVERAGE WEIGHT (MG)	3.9	%	2.91

STOMACH CONTENT

GREEN

N= 18	AVERAGE LENGTH (MM)	39.	S.E.	0.48
N= 18	AVERAGE WEIGHT (G)	0.57	S.E.	0.02

RED

N= 1	AVERAGE LENGTH (MM)	42.	S.E.	0.00
N= 1	AVERAGE WEIGHT (G)	0.75	S.E.	0.00

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA CATCH 174.

N= 50	AVERAGE LENGTH (MM)	40.	S.E.	0.33
N= 50	AVERAGE WEIGHT (G)	0.69	S.E.	0.00
N= 20	AVERAGE WEIGHT (MG)	2.3	%	1.03

STOMACH CONTENT

COHO SALMON-ONCORHYNCHUS KISUTCH CATCH 1.

STICKLEBACKS-FAMILY GASTEROSTEIDAE

FLOUNDERS-GENERAL

SCULPINS-FAMILY COTTIDAE

PACIFIC SAND LANCE-AMMODYTES HEXAPTERUS

PIPEFISHES-FAMILY SYNGNATHIDAE

11MAY76 1000HR AREA 19 DEPTH 2 7 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME		SUMMARY FOR DAY		TIDES PST	FEET	METERS
WIND DIRECTION	CLM	MAX TEMP (C)	16.1	230	15.0	4.57
SPEED (KM/H)		MIN TEMP (C)	2.2	920	4.0	1.22
CLOUD (/10)	1	PRECIP. (MM)	0.0	1615	13.6	4.15
SEA	CALM	SUN (HR)	6.6	2120	8.8	2.68

DEPTH (M)	0.00	0.00
TEMPERATURE (C)	10.00	10.00

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK GREEN
2116.	12	12

UNMARKED FISH

N= 50	AVERAGE LENGTH (MM)	39.	S.E.	0.60
N= 50	AVERAGE WEIGHT (G)	0.64	S.E.	0.00
N= 20	AVERAGE WEIGHT (MG)	3.4	%	2.66

STOMACH CONTENT

GREEN

N= 12	AVERAGE LENGTH (MM)	42.	S.E.	0.76
N= 12	AVERAGE WEIGHT (G)	0.75	S.E.	0.05

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK GREEN
322.	2	2

UNMARKED FISH

N= 50	AVERAGE LENGTH (MM)	42.	S.E.	0.39
N= 50	AVERAGE WEIGHT (G)	0.90	S.E.	0.00
N= 20	AVERAGE WEIGHT (MG)	3.8	%	2.14

STOMACH CONTENT

GREEN

N= 2	AVERAGE LENGTH (MM)	47.	S.E.	1.00
N= 2	AVERAGE WEIGHT (G)	1.30	S.E.	0.10

STICKLEBACKS-FAMILY GASTEROSTEIDAE

GUNNELS-FAMILY PHOLIDAE

FLOUNDERS-GENERAL

BAY PIPEFISH-SYNGNATHUS GRISEOLINEATUS

SCULPINS-FAMILY COTTIDAE

SMELTS-FAMILY OSMERIDAE

SHINER PERCH-CYMATOGASTER AGGREGATA

18MAY76 1630HR AREA 19 DEPTH 2 5 SEIS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME		SUMMARY FOR DAY		TIDES PST	FEET	METERS
WIND DIRECTION	CLM	MAX TEMP (C)	15.6	305	10.1	3.08
SPEED (KM/H)		MIN TEMP (C)	2.2	730	12.4	3.78
CLOUD (/10)	2	PRECIP. (MM)	0.0	1435	3.2	0.98
SEA	CALM	SUN (HR)	8.5	2220	15.1	4.60

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK GREEN
143.	1	1

UNMARKED FISH					
	N= 50	AVERAGE LENGTH (MM)	41.	S.E.	0.62
	N= 50	AVERAGE WEIGHT (G)	0.71	S.E.	0.00
STOMACH CONTENT	N= 20	AVERAGE WEIGHT (MG)	5.4	%	3.84
GREEN					
	N= 1	AVERAGE LENGTH (MM)	47.	S.E.	0.00
	N= 1	AVERAGE WEIGHT (G)	1.08	S.E.	0.00

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA CATCH 180.

	N= 50	AVERAGE LENGTH (MM)	47.	S.E.	0.52
	N= 50	AVERAGE WEIGHT (G)	1.20	S.E.	0.00
STOMACH CONTENT	N= 20	AVERAGE WEIGHT (MG)	3.0	%	1.25

SHINER PERCH-CYMATOGASTER AGGREGATA

PIPEFISHES-FAMILY SYNGNATHIDAE

SCULPINS-FAMILY COTTIDAE

CRESCENT GUNNEL-PHOLIS LAETA

FLOUNDERS-GENERAL

STICKLEBACKS-FAMILY GASTEROSTEIDAE

EIS 25MAY76 1000HR AREA 19 DEPTH 2 6 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME		SUMMARY FOR DAY		TIDES PST	FEET	METERS
WIND DIRECTION	CLM	MAX TEMP (C)	14.4	200	13.5	4.11
SPEED (KM/H)		MIN TEMP (C)	2.2	915	4.7	1.43
CLOUD (/10)	8	PRECIP. (MM)	0.3	1635	12.8	3.90
SEA	CALM	SUN (HR)	2.3	2120	10.3	3.14

CHUM SALMON-ONCORHYNCHUS KETA CATCH 118.

N= 50	AVERAGE LENGTH (MM)	42.	S.E.		0.52
N= 50	AVERAGE WEIGHT (G)	0.79	S.E.		0.00
STOMACH CONTENT N= 20	AVERAGE WEIGHT (MG)	5.2	%		3.32

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA CATCH 120.

N= 30	AVERAGE LENGTH (MM)	50.	S.E.		0.83
N= 30	AVERAGE WEIGHT (G)	1.00	S.E.		0.00
STOMACH CONTENT N= 20	AVERAGE WEIGHT (MG)	4.8	%		2.42

PIPEFISHES-FAMILY SYNGNATHIDAE

FLOUNDERS-GENERAL

SCULPINS-FAMILY COTTIDAE

STICKLEBACKS-FAMILY GASTEROSTEIDAE

GUNNELS-FAMILY PHOLIDAE

SHINER PERCH-CYMATOGASTER AGGREGATA

KELP GREENLING-HEXAGRAMMUS DECAGRAMMUS

3 SETS

2JUN76 1400HR AREA 19

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME	SUMMARY FOR DAY	
WIND DIRECTION	MAX TEMP (C)	14.4
SPEED (KM/H)	MIN TEMP (C)	3.3
CLOUD (/10)	PRECIP. (MM)	1.3
SEA	SUN (HR)	8.8

TIDES

PST	FEET	METERS
235	10.4	3.17
655	12.4	3.78
1410	3.3	1.01
2135	14.9	4.54

CHUM SALMON-ONCORHYNCHUS KETA — CATCH 24.

N= 24	AVERAGE LENGTH (MM)	49.	S.E.	1.17
N= 24	AVERAGE WEIGHT (G)	1.65	S.E.	0.00
STOMACH CONTENT N= 20	AVERAGE WEIGHT (MG)	4.1	%	1.00

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA — CATCH 120.

N= 20	AVERAGE LENGTH (MM)	57.	S.E.	1.00
N= 20	AVERAGE WEIGHT (G)	2.40	S.E.	0.00
STOMACH CONTENT N= 20	AVERAGE WEIGHT (MG)	5.2	%	1.09

PIPEFISHES-FAMILY SYNGNATHIDAE

STICKLEBACKS-FAMILY GASTEROSTEIDAE

GUNNELS-FAMILY PHOLIDAE

SCULPINS-FAMILY COTTIDAE

SHINER PERCH-CYMATOGASTER AGGREGATA

FLOUNDERS-GENERAL

ETS

9JUN76 1000HR AREA 19 DEPTH 2 5 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME		SUMMARY FOR DAY		TIDES PST	FEET	METERS
WIND DIRECTION	CLM	MAX TEMP (C)	16.1	150	15.2	4.63
SPEED (KM/H)		MIN TEMP (C)	5.0	910	2.8	0.85
CLOUD (/10)	6	PRECIP. (MM)	1.8	1615	13.8	4.21
SEA	CALM	SUN (HR)	2.6	2105	10.5	3.20

CHUM SALMON-ONCORHYNCHUS KETA

TOTAL CATCH	TOTAL MARKS	CATCH BY TYPE OF MARK GREEN
79.	1	1

UNMARKED FISH

	N= 50	AVERAGE LENGTH (MM)	47.	S.E.	0.58
	N= 50	AVERAGE WEIGHT (G)	1.16	S.E.	-0.00
STOMACH CONTENT	N= 20	AVERAGE WEIGHT (MG)	13.8	%	5.97

GREEN

	N= 1	AVERAGE LENGTH (MM)	52.	S.E.	0.00
	N= 1	AVERAGE WEIGHT (G)	1.25	S.E.	0.00

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA CATCH 322.

	N= 30	AVERAGE LENGTH (MM)	59.	S.E.	0.75
	N= 30	AVERAGE WEIGHT (G)	2.58	S.E.	0.00
STOMACH CONTENT	N= 20	AVERAGE WEIGHT (MG)	12.6	%	2.44

STICKLEBACKS-FAMILY GASTEROSTEIDAE

GUNNELS-FAMILY PHOLIDAE

SHINER PERCH-CYMATOGASTER AGGREGATA

SCULPINS-FAMILY COTTIDAE

15JUN76 1400HR AREA 19 5 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME		SUMMARY FOR DAY		TIDES PST	FEET	METERS
WIND DIRECTION	SE	MAX TEMP (C)	17.2	155	10.0	3.05
SPEED (KM/H)		MIN TEMP (C)	10.6	635	13.0	3.96
CLOUD (/10)	10	PRECIP. (MM)	1.5	1330	2.7	0.82
SEA		SUN (HR)	0.4	2050	15.3	4.66

CHUM SALMON-ONCORHYNCHUS KETA CATCH 50.

N= 50	AVERAGE LENGTH (MM)	53.	S.E.		0.56
N= 50	AVERAGE WEIGHT (G)	1.49	S.E.		0.00
STOMACH CONTENT N= 20	AVERAGE WEIGHT (MG)	4.9	%		1.66

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA CATCH 33.

N= 28	AVERAGE LENGTH (MM)	61.	S.E.		1.04
N= 28	AVERAGE WEIGHT (G)	2.79	S.E.		0.00
STOMACH CONTENT N= 20	AVERAGE WEIGHT (MG)	9.3	%		1.68

FLOUNDERS-GENERAL

SHINER PERCH-CYMATOGASTER AGGREGATA

SCULPINS-FAMILY COTTIDAE

STICKLEBACKS-FAMILY GASTEROSTEIDAE

GUNNELS-FAMILY PHOLIDAE

PACIFIC SAND LANCE-AMMODYTES HEXAPTERUS

ETS

23JUN76 930HR AREA 19 5 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS		SUMMARY FOR DAY		TIDES PST	FEET	METERS
AT SET TIME						
WIND DIRECTION	SE	MAX TEMP (C)	19.4	110	13.6	4.15
SPEED (KM/H)	16	MIN TEMP (C)	11.7	845	4.5	1.37
CLOUD (/10)	10	PRECIP. (MM)	0.0	1615	12.8	3.90
SEA		SUN (HR)	7.4	2045	11.2	3.41

CHUM SALMON-ONCORHYNCHUS KETA				CATCH		3.
	N= 3	AVERAGE LENGTH (MM)	54.	S.E.		0.88
	N= 3	AVERAGE WEIGHT (G)	1.50	S.E.		0.06
STOMACH CONTENT	N= 3	AVERAGE WEIGHT (MG)	6.0	%		2.00
CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA				CATCH		50.
	N= 30	AVERAGE LENGTH (MM)	65.	S.E.		0.79
	N= 30	AVERAGE WEIGHT (G)	3.36	S.E.		0.00
STOMACH CONTENT	N= 20	AVERAGE WEIGHT (MG)	11.9	%		1.76

SCULPINS-FAMILY COTTIDAE

STICKLEBACKS-FAMILY GASTEROSTEIDAE

GUNNELS-FAMILY PHOLIDAE

PACIFIC SAND LANCE-AMMODYTES HEXAPTERUS

SHINER PERCH-CYMATOGASTER AGGREGATA

FLOUNDERS-GENERAL

PIPEFISHES-FAMILY SYNGNATHIDAE

RAINBOW TROUT-SALMO GAIRDNERI

29JUN76 1400HR AREA 19 DEPTH 2 5 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS AT SET TIME		SUMMARY FOR DAY		TIDES PST	FEET	METERS
WIND DIRECTION	CLM	MAX TEMP (C)	18.9	40	10.9	3.32
SPEED (KM/H)		MIN TEMP (C)	13.9	510	13.5	4.11
CLOUD (/10)	10	PRECIP. (MM)	3.6	1225	2.3	0.70
SEA	CALM	SUN (HR)	2.3	1955	15.2	4.63

						CATCH	78.
CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA	N= 30	AVERAGE LENGTH (MM)		70.	S.E.		0.88
	N= 30	AVERAGE WEIGHT (G)		4.08	S.E.		0.00
STOMACH CONTENT	N= 20	AVERAGE WEIGHT (MG)		17.8	4		2.18
CHUM SALMON-ONCORHYNCHUS KETA						CATCH	10.
	N= 10	AVERAGE LENGTH (MM)		56.	S.E.		1.72
	N= 10	AVERAGE WEIGHT (G)		1.84	S.E.		0.00
STOMACH CONTENT	N= 10	AVERAGE WEIGHT (MG)		14.5	4		5.94

SCULPINS-FAMILY COTTIDAE

GUNNELS-FAMILY PHOLIDAE

STICKLEBACKS-FAMILY GASTEROSTEIDAE

SHINER PERCH-CYMATOGASTER AGGREGATA

FLOUNDERS-GENERAL

PRICKLEBACKS-FAMILY STICHAEIDAE

ETS 7JUL76 900HR AREA 19 DEPTH 2 4 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

	AT SET TIME		SUMMARY FOR DAY		TIDES PST	FEET	METERS
ERS							
.32	WIND DIRECTION	SE	MAX TEMP (C)	20.0	20	14.9	4.54
.11	SPEED (KM/H)		MIN TEMP (C)	15.0	745	3.5	1.07
.70	CLOUD (/10)	10	PRECIP. (MM)	6.1	1515	13.3	4.05
.63	SEA	CALM	SUN (HR)	0.1	1955	11.0	3.35

78.	CHUM SALMON-ONCORHYNCHUS KETA					CATCH		1.
.86		N= 1	AVERAGE LENGTH	(MM)	37.	S.E.		0.00
.00		N= 1	AVERAGE WEIGHT	(G)	0.43	S.E.		0.00
.18	STOMACH CONTENT	N= 1	AVERAGE WEIGHT	(MG)	0.5	%		0.58
10.	CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA					CATCH		69.
.72		N= 20	AVERAGE LENGTH	(MM)	70.	S.E.		1.42
.00		N= 20	AVERAGE WEIGHT	(G)	4.32	S.E.		-0.00
.94	STOMACH CONTENT	N= 20	AVERAGE WEIGHT	(MG)	17.2	%		1.99

STICKLEBACKS-FAMILY GASTEROSTEIDAE

GUNNELS-FAMILY PHOLIDAE

SHINER PERCH-CYMATOGASTER AGGREGATA

SCULPINS-FAMILY COTTIDAE

FLOUNDERS-GENERAL

PIPEFISHES-FAMILY SYNGNATHIDAE

PRICKLEBACKS-FAMILY STICHAEIDAE

16JUL76 1530HR AREA 19 4 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME
WIND DIRECTION
SPEED (KM/H)
CLOUD (/10)
SEA

SUMMARY FOR DAY

MAX TEMP (C) 27.2
MIN TEMP (C) 10.6
PRECIP. (MM) 0.0
SUN (HR) 13.2

TIDES

PST	FEET	METERS
305	8.1	2.47
815	11.5	3.51
1415	5.9	1.80
2105	14.6	4.45

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA CATCH 4.

N= 4	AVERAGE LENGTH (MM)	71.	S.E.	1.08
N= 4	AVERAGE WEIGHT (G)	4.44	S.E.	0.45
STOMACH CONTENT N= 4	AVERAGE WEIGHT (MG)	21.4	%	2.41

COHO SALMON-ONCORHYNCHUS KISUTCH CATCH 1.

SCULPINS-FAMILY COTTIDAE

FLOUNDERS-GENERAL

PRICKLEBACKS-FAMILY STICHAEIDAE

SHINER PERCH-CYMATOGASTER AGGREGATA

STICKLEBACKS-FAMILY GASTEROSTEIDAE

PIPEFISHES-FAMILY SYNGNATHIDAE

21JUL76 830HR AREA 19 4 SETS

MUDFLAT BEACH SEINES NANAIMO RIVER MUDFLAT E

WEATHER CONDITIONS

AT SET TIME
WIND DIRECTION SE
SPEED (KM/H) 8
CLOUD (/10) 10
SEA RIPPLE

SUMMARY FOR DAY

MAX TEMP (C) 17.2
MIN TEMP (C) 11.1
PRECIP. (MM) 0.8
SUN (HR) 0.1

TIDES

PST	FEET	METERS
705	5.3	1.62
1510	12.3	3.75
1900	11.3	3.44

CHINOOK SALMON-ONCORHYNCHUS TSHAWYTSCHA CATCH 3.

N= 3	AVERAGE LENGTH (MM)	69.	S.E.	1.00
N= 3	AVERAGE WEIGHT (G)	3.88	S.E.	0.21
STOMACH CONTENT N= 3	AVERAGE WEIGHT (MG)	8.3	%	1.07

CUTTHROAT TROUT-SALMO CLARKI CLARKI

SCULPINS-FAMILY COTTIDAE

SHINER PERCH-CYMATOGASTER AGGREGATA

FLOUNDERS-GENERAL

PRICKLEBACKS-FAMILY STICHAEIDAE

PIPEFISHES-FAMILY SYNGNATHIDAE

This report was corrected after

publication and reduced to 46 pages.